Aiming to be a sustainable city that creates added value based on a compact city

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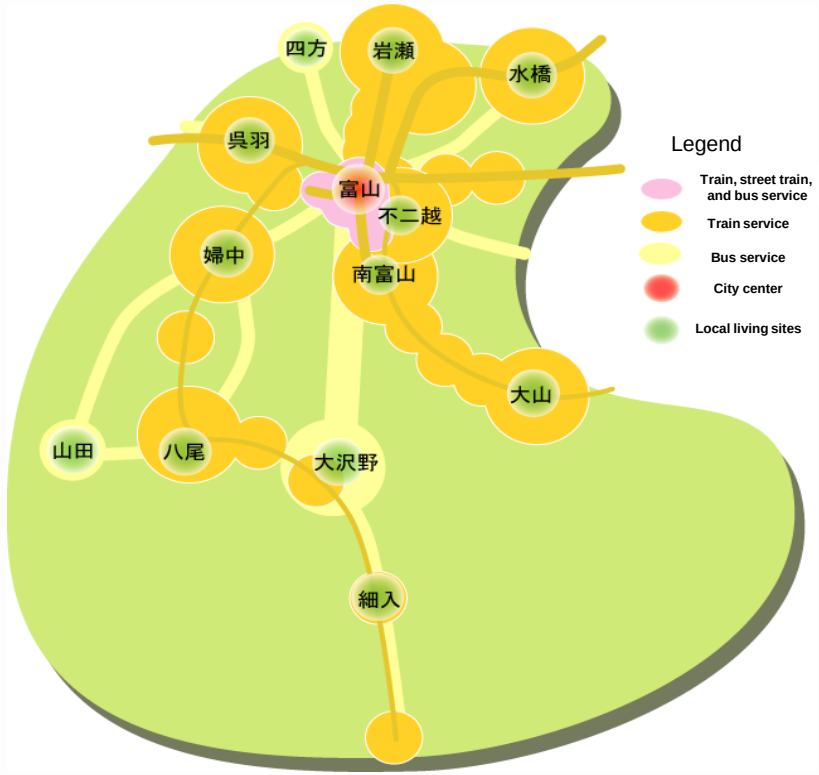
Mayor of Toyama City

Urban Vision – Developing a Compact Community

Realize compact community development with sites concentrated along public transportation through vitalization of railway and other public transportation and concentration of various urban functions, such as residential, retail, business, and cultural, alongside

＜Conceptual diagram＞
Toyama's "skewered" urban structure

Stick: Public transportation with a certain level of service
Food: Walking zone connected by the stick



＜Three pillars for realization＞

① Vitalization of public transportation

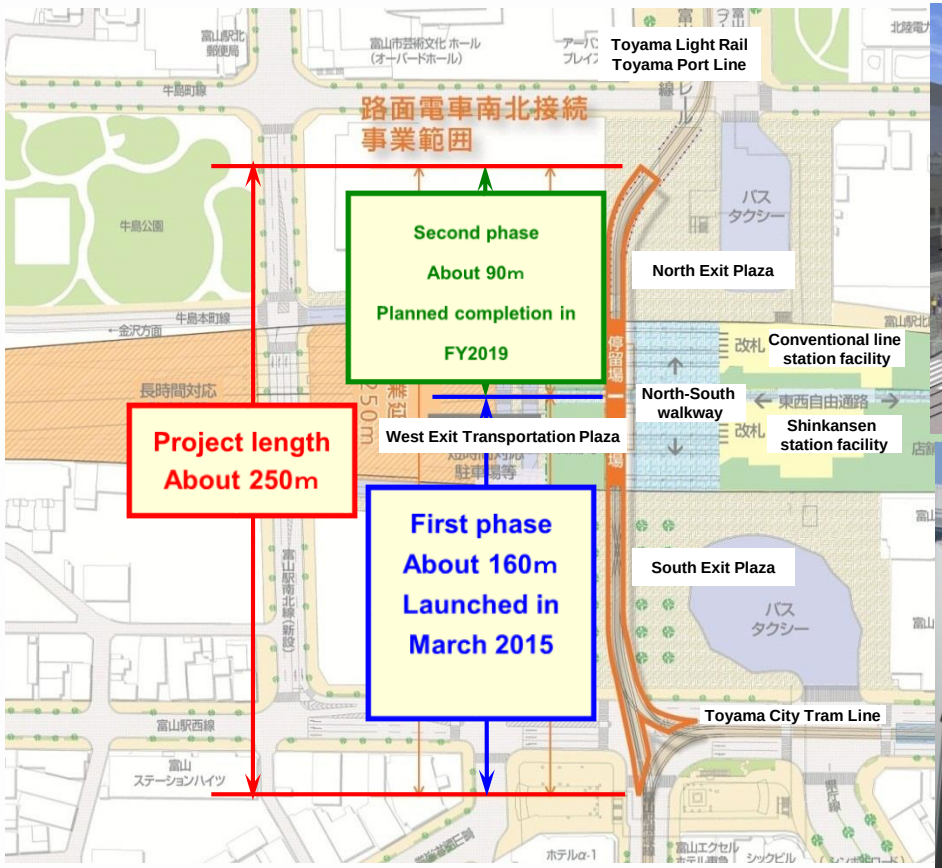
② Promotion of residential living in areas along public transportation infrastructure

③ Vitalization of central urban area

Overview of the street train project with a north-south connection

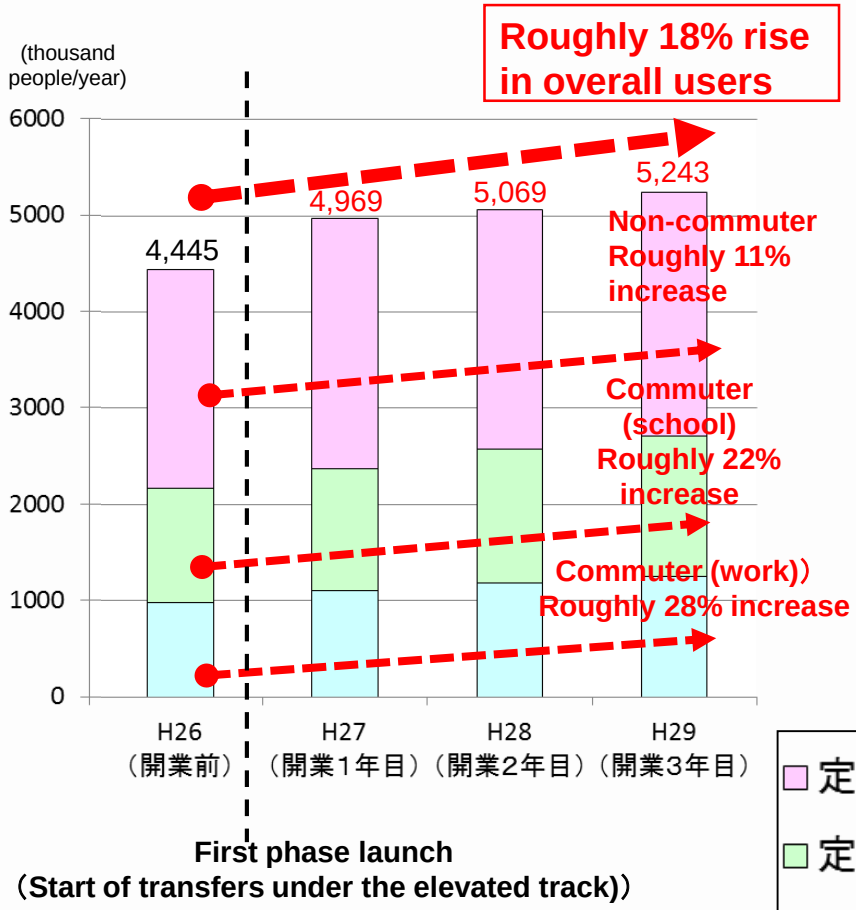
Formation of an LRT network accompanying the Hokuriku Shinkansen development that connects the city train on the south side of Toyama Station and Toyama Light Rail on the north side

- **First phase: City train with a connection under the elevated Shinkansen track for the start of Hokuriku Shinkansen service**
- **Second phase: Connection of the city train and Toyama Light Rail as part of track elevation for the conventional train line**

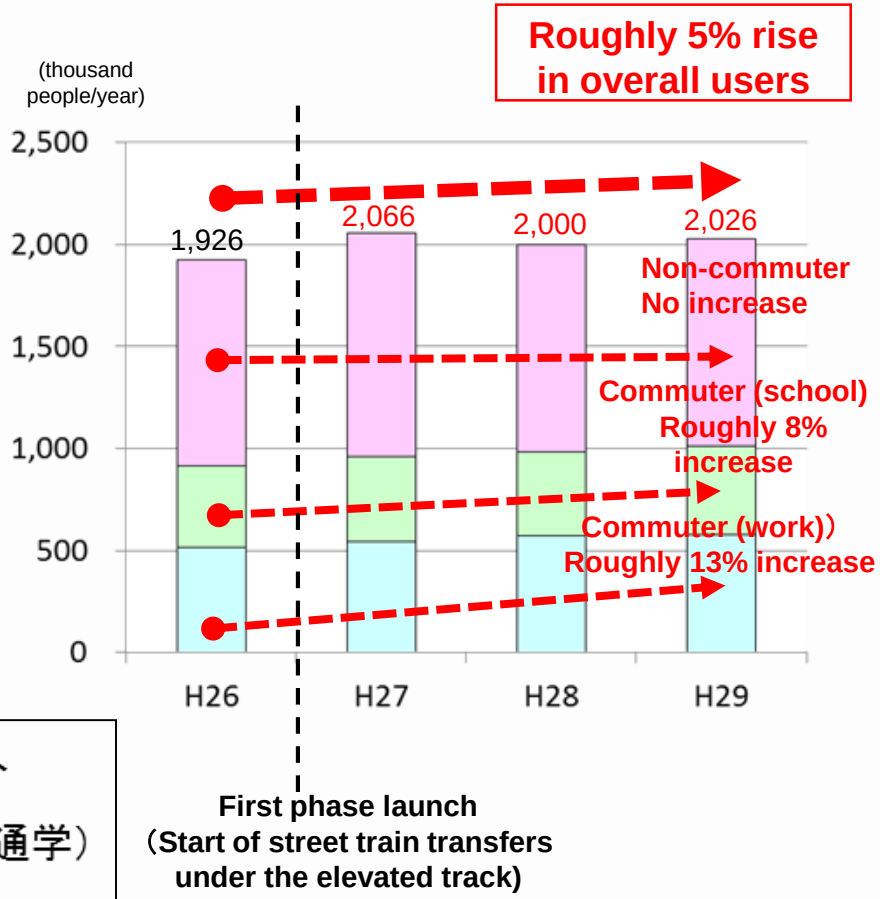


Development effect (increase in street train users)

■Street train (city train) user volume (2014-17)



■Toyama Light Rail user volume (2014-17)

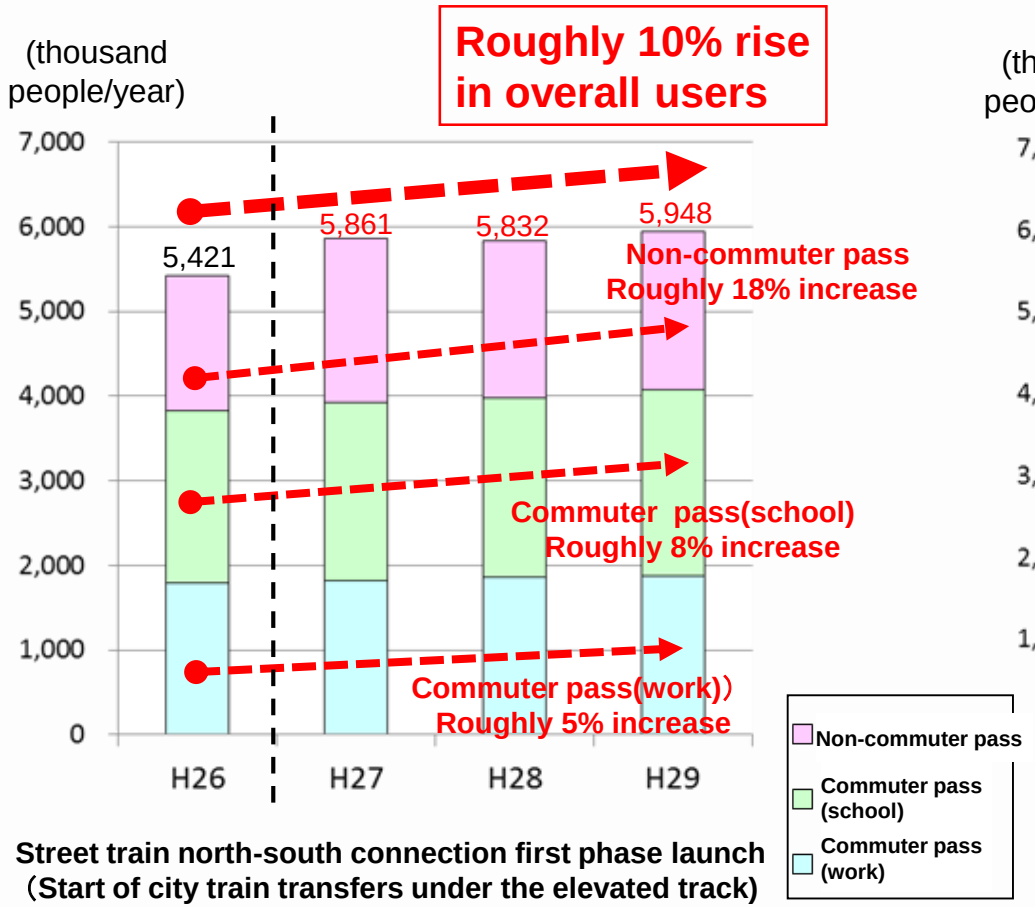


Major rise in usage with significant improvement in transfer convenience under the elevated track

Across-the-board increase in public transportation users with Toyama Station as a node

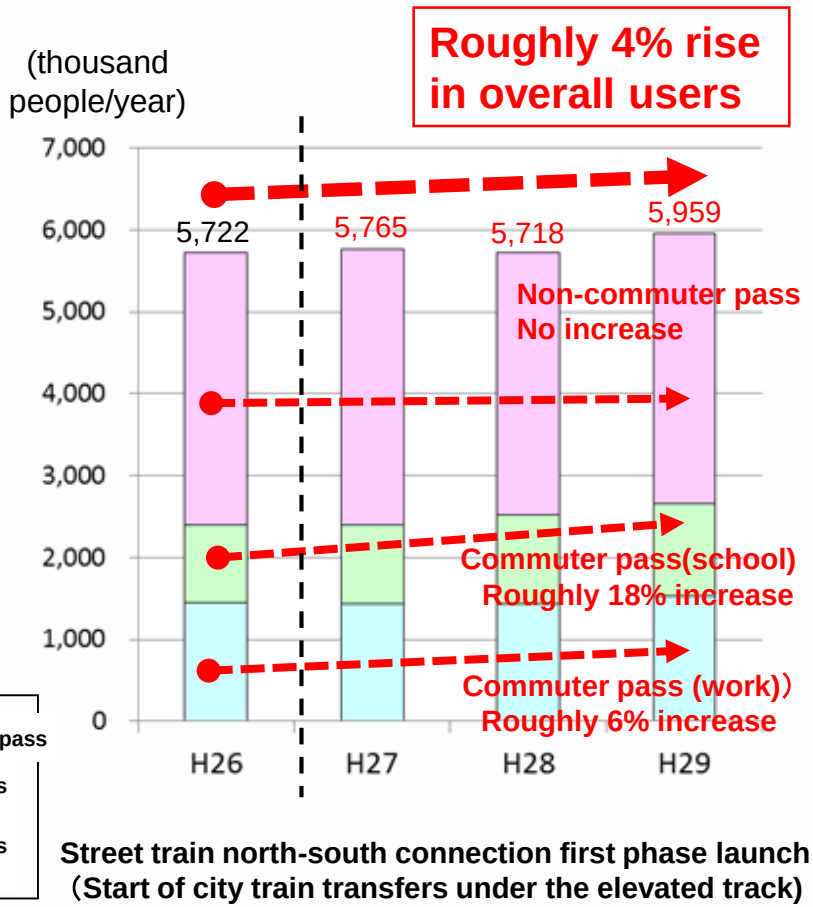
Development effect (increase in public transportation users)

■Toyama Subway users (2014-17)



Street train north-south connection first phase launch
(Start of city train transfers under the elevated track)

■Street bus users (2014-17)

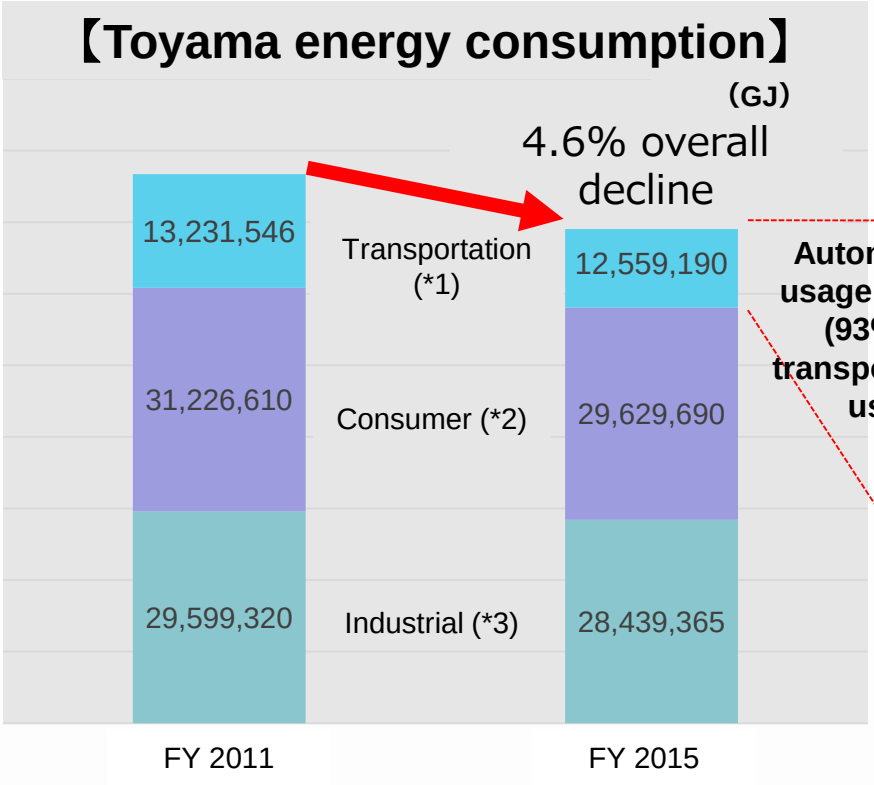


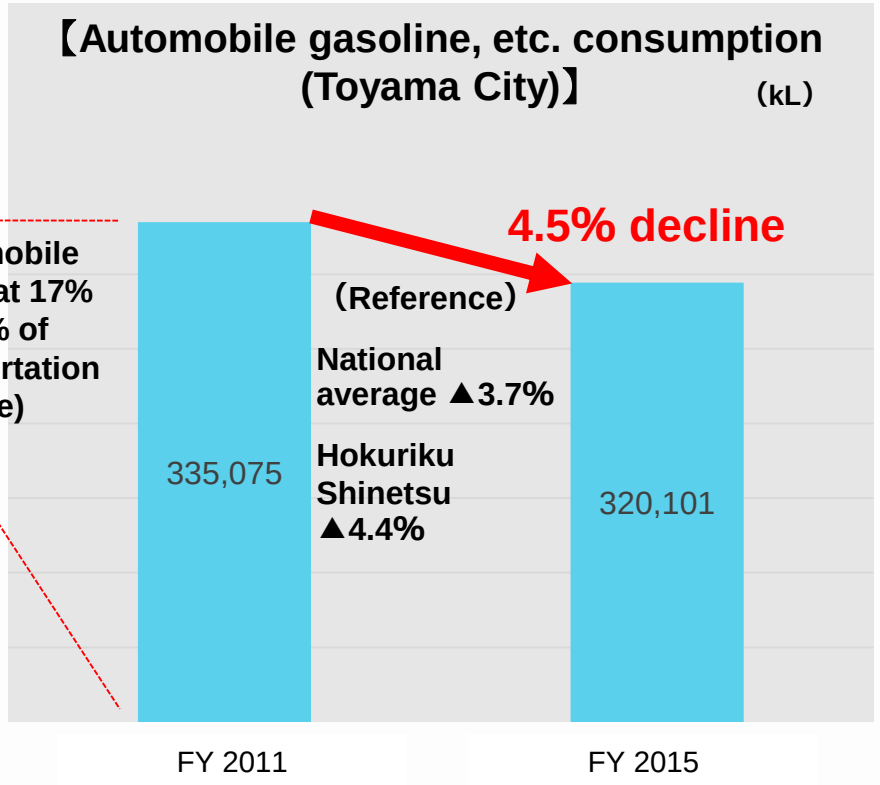
Street train north-south connection first phase launch
(Start of city train transfers under the elevated track)

Across-the-board increase in public transportation users with Toyama Station as a node

Compact city development effect – Decline in energy usage

■ 4.6% drop in Toyama City's energy usage from FY2011 (standard year) to FY2015 (exceeded the 3.7% plan value by 0.9ppt)
■ 4.5% decline in automobile gasoline usage (17% of total usage)





(Note 1) Transportation sector: Automobiles, railway, ships, aircraft total

(Note 2) Consumer sector: Household, commercial, water/sewage total

(Notre 3) Industrial sector: Agriculture, forestry, and fishery, construction, mining, and manufacturing total

Source: Toyama City Energy Efficiency Improvement Plan Follow-Up Report, Ministry of Land, Infrastructure, Transport and Tourism's Automobile Fuel Consumption Data Annual Report

Effect of LRT Provision in a Compact City

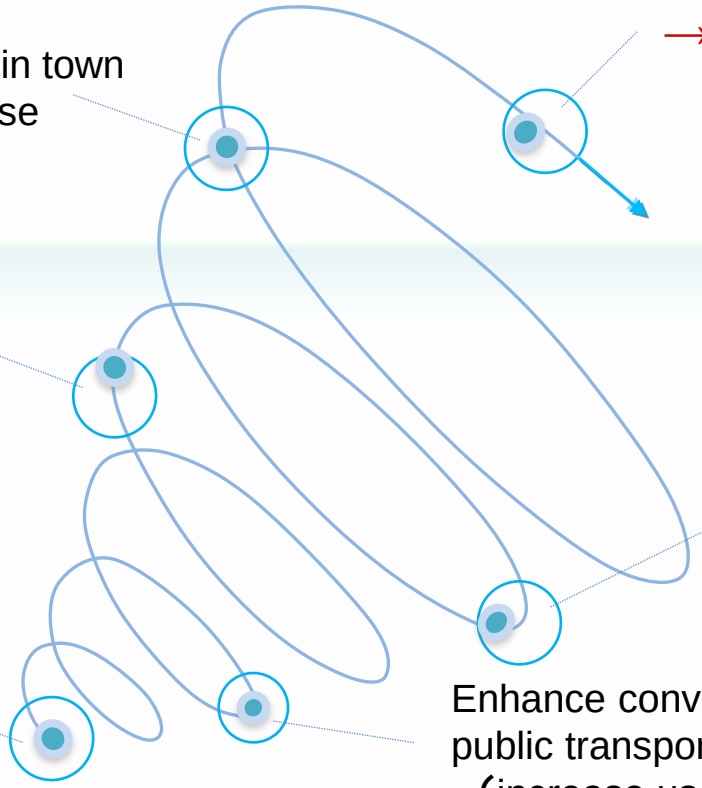
Foster a “beneficial spiral” with positive impacts and changes for the city and people

Change citizen awareness
（foster civic pride）
Increase people living in town
（maintain and increase resident population）

Selected town
→ highly sustainable city

Change senior lifestyles
Increase visits by young people to the central area
（expand opportunities to be outdoors）

Vitalization of the city center
（generate activity and promote private-sector investments）
Vitalization of the regional economy
（increase tourism, etc.）



Improve city mobility (such as LRT construction)

Enhance convenience and promote use of public transportation
（increase users = boost business incomes）
Improve the city look and appeal

Toyama City's intercity collaboration

International deployment of technology and knowhow from Toyama City and city-based companies

Bali, Tabanan (Indonesia)

2014.3 Agreement (renewable energy, farming, etc.)
2017.11 Small hydropower facilities (four)
2019 Hulling rice mill deployment (plan)
2020 Waste processing plant (plan)

Iskandar development district (Malaysia)

2015.2 Agreement (renewable energy, public transportation, etc.)
2018.2 Small hydropower + solar power facilities

Central Java, Semarang (Indonesia)

2017.12 Agreement (renewable energy, public transportation, etc.)
2019.1 CNG-converted buses (72)

Kota Kinabalu City (Malaysia)

2018.2 Agreement (renewable energy, farming technology, etc.)
2019 Renewable energy off-grid completion in Kobuni Village (plan)

Bali, Klungkung (Indonesia)

2017.11 Agreement (Bali Udayana University, renewable energy, etc.)
2018.8 Grass-root project request
2019 Solar power + water pump completion (plan)

Benkulu, Lebong (Indonesia)

2019 Small hydropower plant launch (plan)

Aceh, Banda Aceh (Indonesia)

North Sumatra, Tebing Tinggi (Indonesia)

Renewable energy, rice mill, etc. deployment assistance request

Tabanan (Indonesia)

In March 2014, Toyama City concluded a cooperation agreement with Tabanan province in Bali, Indonesia for small hydropower systems and farming (rice) stimulation projects.
In November 2017, four small hydropower facilities started operating. Preparations are also proceeding for deployment of hulling rice mills and waste processing plants


Conclusion of a cooperation agreement


Completion ceremony

Issue

- Power shortage
- Farming pullback
- Final processing site shortage

Project

Solve

Toyama technology

- Small hydropower
- Farming technology (rice mill)
- Waste processing

Toyama City local attributes

- Abundant water resources
- Extensive farming waterway network
- Farming (mainly rice)

Semarang (Indonesia)

Semarang City is one of the Rockefeller Foundation's 100 Resilient Cities (100RC), just as Toyama City. These two cities concluded a cooperation agreement in December 2017 and are conducting a JCM feasibility survey for application of Toyama City and city-based company technology and knowhow to Semarang City. In January 2019, city-based companies complete deployment of CNG (compressed natural gas) in 72 public buses.


Concluded a cooperation agreement

Issues

- Easing of transportation congestion Stimulation of public transport
- Realization of a low carbon society

Project

Solve

Toyama's technology

- Public transportation (CNG bus)
- Utilization of renewable energy

Iskandar (Malaysia)

In February 2015, Toyama City and Malaysia's Iskandar region, which has been selected as an "energy efficiency improvement city" by the United Nations SE**for**ALL concluded an agreement on implementation of environment future city projects, such as small hydropower systems and public transportation.
In February 2018, city companies received orders from the local area and installed small hydropower facilities in a national park (Pontian area, Johor)


Floating small hydropower facilities


Small hydropower facility completion（2018.2）

Agreement conclusion（2015.2）

Issues

- Environment burden from rapid advances
- Population concentration/traffic congestion
- Intercity transportation
- Response to rising energy demand

Solve

Toyama City's technology and knowhow

- Compact city policy
- Small hydropower and other renewable energy
- Public transportation that is amenable to people and the environment

Significance of international initiatives